APPENDIX H

Impact Avoidance and Minimization Measures

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ANTELOPE VALLEY WILDLIFE AREA (AVWA)AND SMITHNECK CREEK WILDLIFE AREA (SCWA) LAND MANAGEMENT PLAN (LMP) WATERSHED RESTORATION PROGRAM

The proposed watershed restoration program has been designed to include several protection measures to avoid or minimize potential adverse environmental effects. The following biological and water quality conservation measures will be used during the course of program implementation.

BIOLOGICAL RESOURCE CONSERVATION

The following measures will be implemented to minimize potential adverse effects to sensitive biological resources:

1. In order to avoid potential construction-related impacts to nesting birds and fawning deer in the project vicinity, or to aquatic species that may occur within the stream corridors, construction will occur between September 1 and October 1.

   Alternatively, construction may begin after June 1 following consultation with Department and USFS wildlife biologists, if a qualified biologist verifies that no birds are nesting in vegetation to be removed, that no raptors or yellow warblers nesting in the project vicinity would be subject to nest failure as a result of construction disturbance, and that no mule deer fawns in their "hiding" phase would be displaced by construction disturbance. Construction may continue after October 1 if it is determined, in consultation with a Department aquatic biologist, a USFS aquatic biologist, and the Central Valley RWQCB, that sensitive fish species are not present or would not be susceptible to the specific construction disturbance proposed to occur after October 1, and that construction best management practices (BMPs) implemented to protect water quality are adequate protection against potential erosive impacts of winter storm events.

2. Before project construction, fish translocation activities will be conducted to remove all native and game (e.g., brown trout) fish species from the immediate construction area.
   - Block nets will be placed upstream and downstream of the designated construction area to prevent fish from entering the site. The block nets will be placed across the channel approximately 100-feet above and below the designated construction area.
   - Once the construction area has been isolated, electrofishing will be employed throughout the entire length of the construction area to capture, remove, count, and release fish. Electrofishing

passes will be made as necessary until it has been determined by a qualified aquatic biologist that all fish that practicably can be removed have been removed.

- All captured fish will be placed in 5-gallon buckets with fresh, clear water and transported to upstream release sites(s) identified before initiating translocation activities. Buckets containing native fishes will be moved to the release site frequently, with no more than 200 fish in a bucket at one time and for no longer than 15 minutes. All native and/or game fish species will be released in pools or slow moving currents (i.e., glides) and will be allowed to swim out of the buckets. Nonnative and non-game fish and other nonnative aquatic species (e.g., bullfrog tadpoles) will be destroyed. A minimum of one representative bucket sample from the entire translocation effort will be counted for total individuals by species. Any potential fish mortalities will also be noted.

- Once all fish have been captured, transported, and released, the on-site fisheries biologist will clear the site for construction. During the construction activities, the on-site fisheries biologist will monitor the construction area reaches (with fish removal and transporting equipment) for areas that may become dewatered and potentially strand any fish that may have been missed. Any stranded fish will be immediately captured, transported and released upstream as described above.

- After completion of field activities, a written letter report documenting activities will be prepared. The letter report will include a description of all fish translocation and salvage activities and estimates for total fish translocated and salvaged by species (including any mortalities).

3. Grade control structures will be designed and constructed to provide passage for all native and desirable game fish species. Grade control structures will be designed utilizing natural materials (e.g., boulders) in a rock ramp and/or step pool configuration. Height of the drop structures and length and depth of pools will be designed to facilitate upstream and downstream passage for multiple fish species and will be based on the swimming abilities of the native and game fish species present in the creeks. The new alignment of the creeks will be hydrologically continuous and provide riffle-pool habitats with a riparian corridor. The new alignment of the creek will provide habitat functions to support a diverse community of species and meet habitat requirements for all necessary life stages (e.g., spawning and rearing).

4. Structure (e.g. large woody debris) may be installed in restored channels to enhance fish habitat following watershed restoration activities. Riparian vegetation (e.g. willow stakes) may be planted or transplanted along stream banks to enhance riparian habitat following watershed restoration activities. Conifers that are out-competing young aspens may be removed to enhance riparian habitat.

5. Before restoration actions and during the appropriate blooming/identification period, a qualified botanist will conduct surveys in all restoration areas for the presence or absence of special-status plants that might be present in the region (see LMP Table 3.3-3). If individuals or populations of special-status plants are found, they will be avoided to the greatest extent practicable. If avoidance is not feasible and if the particular plant species has any federal or state protection status, additional protection measures will be implemented. These may include transplanting individuals of the affected species, or collecting seed and creating populations elsewhere. These additional protection measures will be developed and approved by a Department, USFS, and/or USFWS biologist, as appropriate depending on the plant's listing status.

6. Before restoration actions, surveys will be conducted for invasive plant species (such as woolly mullein and perennial pepperweed) within the restoration area and in adjacent floodplain areas that may experience a change in hydrology. If any invasive plant species are found, they will be removed or eradicated. No herbicides will be used on USFS property.

7. Before transport to the work sites all construction equipment should be thoroughly washed (steam cleaned) to remove unwanted seeds

WATER QUALITY CONSERVATION

BMPs will be implemented in accordance with applicable federal and state regulations that provide for the protection of water quality at all restoration sites. Before the start of any construction work, clearing, site grading or stockpiling associated with preparation of the sites, measures to control soil erosion, sedimentation, and waste discharges of construction-related contaminants will be identified and installed. USFS and DFG will require all contractors conducting work at the sites to implement these measures, and the general contractor(s) and subcontractor(s) conducting the work will be responsible for constructing or implementing, regularly inspecting, and maintaining the measures in good working order.

Standard erosion control measures (e.g., management, structural, and vegetative controls) will be implemented for all construction activities that expose soil. Grading operations will be conducted to eliminate direct routes for conveying potentially contaminated runoff to new and existing drainage channels. Erosion control barriers such as silt fences/curtains and mulching material will be installed, and disturbed areas will be reseeded with grasses or other plants where necessary. Tracking controls will be required year-round, as needed, to reduce the tracking of sediment and debris from the construction site. The following specific BMPs will be implemented:

A Storm Water Pollution Prevention Plan will be prepared and submitted to the Central Valley RWQCB. It will identify BMPs that will be used to eliminate or minimize the potential for construction-related pollution (e.g. sediment, fuels, pesticides, cement) to enter stream flows directly, or through stormwater runoff. All BMPs will be implemented accordingly.

- All work will be conducted according to site-specific construction plans that identify areas for clearing and grading so that ground disturbance is minimized. Sensitive habitats to be avoided will be identified with orange fencing or other similar demarcation.

- A point of entrance/exit to the construction sites will be identified to reduce the tracking of mud and dirt onto public roads by construction vehicles, and each construction entrance/exit will be graded and stabilized to prevent runoff from leaving the construction site. All runoff from stabilized entrances/exits will be routed through a sediment-trapping device before discharge. At a minimum, entrances and exits shall be inspected daily, and controls implemented as needed.

- Stream flows that do not dissipate into the historic flood plain during restoration will be diverted around the restoration area as needed to avoid erosion and sedimentation while construction is occurring.

- Stream flows will be diverted around construction activities during the dry season as necessary to avoid infringing upon downstream water appropriations.

- Sediment control BMPs will be installed at the downstream extent of the restoration areas to capture any sediments released during construction. These BMPs will be maintained at least through the first flush of the restored area to capture any sediments that may be eroded from newly restored habitats.

- Stockpiles will be covered and protected from exposure to erosion and flooding.

- Disturbed soils will be stabilized before the onset of the winter season.

BMPs will also specify appropriate hazardous materials handling, storage, and spill response practices to reduce the possibility of adverse impacts from use or accidental spills or releases of contaminants. Specific measures that will be applied to the restoration program include, but are not limited to, the following:

- Onsite handling rules will be developed and implemented to keep construction and maintenance materials out of drainages and waterways.

- All refueling and servicing of equipment will be conducted with absorbent material or drip pans underneath to contain spilled fuel. Any fluid drained from machinery during servicing will be collected in leak-proof containers and delivered to an appropriate disposal or recycling facility.

- All construction staging and fueling areas will be located at least 100 feet away from stream channels or wetlands to minimize accidental spills and runoff of contaminants.

- Spill cleanup equipment will be maintained in proper working condition. All spills will be cleaned up immediately according to a spill prevention and response plan prepared for the restoration program. Appropriate resource agencies (e.g., USFS, DFG, RWQCB) will be notified immediately of any spills and cleanup procedures.